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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,782	01/13/2004	John U. Knickerbocker	FIS920030328	2955
29505	7590	07/28/2005	EXAMINER	
DELIO & PETERSON, LLC 121 WHITNEY AVENUE NEW HAVEN, CT 06510			BLEVINS, JERRY M	
			ART UNIT	PAPER NUMBER
			2883	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/756,782	<b>Applicant(s)</b> KNICKERBOCKER ET AL.	
	<b>Examiner</b> Jerry Martin Blevins	<b>Art Unit</b> 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>01/13/2004</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pre Grant Publication to Dautartus et al, number 2003/0095759 in view of US Pre Grant Publication to Hengelmolen et al, number 2004/0161205.

Regarding claim 1, Dautartus teaches a ferrule for an optical fiber connector (Figure 1A, element 120) comprising a multilayer ceramic body (page 3, paragraph 39) having a top, bottom, front and rear sides and opposed sides (Figure 1A). Although Dautartus teaches a plurality of openings (page 3, paragraph 39), Dautartus does not explicitly teach that these holes extend through the body between the top and bottom for holding individual optical fibers. Hengelmolen teaches a ferrule (Figures 1 and 2, element 10) with a plurality of optical fiber through openings (Figures 1 and 2, element H) extending through the body between the top and the bottom for holding individual optical fibers (page 2, paragraphs 27-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the optical fiber through openings of Hengelmolen in the ferrule of Dautartus. The motivation would have been to improve the securing and alignment of the optical fibers held in the ferrule (Hengelmolen, page 2, paragraph 28).

Regarding claim 2, Dautartus in view of Hengelmolen teaches the limitations of the base claim 1. Dautartus does not teach alignment pin through openings extending through the body between the top and the bottom. Hengelmolen teaches alignment pin through openings (Figures 1 and 2, element 10a) extending through the body between the top and the bottom. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the alignment pin through openings of Hengelmolen in the ferrule of Dautartus. The motivation would have been to improve alignment with respect to another ferrule (Hengelmolen, page 2, paragraph 25).

Regarding claim 3, Dautartus in view of Hengelmolen teaches the limitations of the base claim 1. Dautartus does not teach that the optical fiber through openings are tapered. Hengelmolen teaches tapered optical fiber through openings (Figure 2, taper section 10g and page 2, paragraph 29). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the tapered optical fiber through openings of Hengelmolen in the ferrule of Dautartus. The motivation would have been to improve insertion efficiency (Hengelmolen, page 2, paragraph 22).

Regarding claim 4, Dautartus in view of Hengelmolen teaches the limitations of the base claim 1. Dautartus does not teach that the optical fiber through openings are tapered at the entrance end of the opening. Hengelmolen teaches optical fiber through openings tapered at the entrance of the opening (Figure 2, taper section 10g tapered at entrance end 10e and page 2, paragraph 29). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the optical fiber through openings tapered at the entrance of the opening of Hengelmolen in the ferrule of

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Dautartus. The motivation would have been to improve insertion efficiency (Hengelmolen, page 2, paragraph 22).

Regarding claim 5, Dautartus in view of Hengelmolen teaches the limitations of the base claim 1. Dautartus does not teach that the optical fiber through openings are wider at the entrance end of the opening. Hengelmolen teaches optical fiber through openings, which are wider at the entrance end of the opening (Figure 2, taper section 10g and page 2, paragraph 29 which explicitly teaches that entrance end 10e is wider than guide section 10d). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the optical fiber through openings, which are wider at the entrance end of the opening, of Hengelmolen in the ferrule of Dautartus. The motivation would have been to improve insertion efficiency (Hengelmolen, page 2, paragraph 22).

Regarding claims 6 and 7, Dautartus in view of Hengelmolen teaches the limitations of the base claim 1. Dautartus also teaches that holes are made in the ferrule by mechanical punching (page 3, paragraph 39).

Regarding claim 8, Dautartus teaches a method for making a ferrule (Figure 1A, element 120) for an optical fiber connector (page 3, paragraph 39) comprising the steps of: forming a plurality of greensheets from ceramic material (page 3, paragraph 39), stacking the plurality of greensheets together to a desired thickness having a top, bottom, front and rear sides and opposed sides (Figure 1A and page 3, paragraph 39), laminating the stack (page 3, paragraph 39), and sintering (firing) the laminating stack to form an optical connector ferrule (page 3, paragraph 39). Although Dautartus teaches

the step of forming openings (page 3, paragraph 39), Dautartus does not explicitly teach that the openings are optical fiber through openings extending through the top and bottom in the desired pattern. Hengelmolen teaches a ferrule (Figures 1 and 2, element 10) with a plurality of optical fiber through openings (Figures 1 and 2, element H) extending through the body between the top and the bottom for holding individual optical fibers (page 2, paragraphs 27-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the optical fiber through openings of Hengelmolen in the ferrule of Dautartus. The motivation would have been to improve the securing and alignment of the optical fibers held in the ferrule (Hengelmolen, page 2, paragraph 28).

Regarding claim 9, Dautartus in view of Hengelmolen teaches the limitations of the base claim 8. Dautartus also teaches the step of forming openings in each greensheet before the stack is laminated (page 3, paragraph 39).

Regarding claim 10, Dautartus in view of Hengelmolen teaches the limitations of the base claim 8. Dautartus does not teach that the optical fiber through openings are tapered. Hengelmolen teaches tapered optical fiber through openings (Figure 2, taper section 10g and page 2, paragraph 29). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the formation of tapered optical fiber through openings of Hengelmolen in the method of Dautartus. The motivation would have been to improve insertion efficiency (Hengelmolen, page 2, paragraph 22).

Regarding claim 11, Dautartus in view of Hengelmolen teaches the limitations of the base claim 8. Dautartus does not teach that the optical fiber through openings are

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tapered at the entrance end of the opening. Hengelmolen teaches optical fiber through openings tapered at the entrance of the opening (Figure 2, taper section 10g tapered at entrance end 10e and page 2, paragraph 29). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the formation of optical fiber through openings tapered at the entrance of the opening of Hengelmolen in the method of Dautartus. The motivation would have been to improve insertion efficiency (Hengelmolen, page 2, paragraph 22).

Regarding claim 12, Dautartus in view of Hengelmolen teaches the limitations of the base claim 8. Dautartus does not teach that the optical fiber through openings are wider at the entrance end of the opening. Hengelmolen teaches optical fiber through openings, which are wider at the entrance end of the opening (Figure 2, taper section 10g and page 2, paragraph 29 which explicitly teaches that entrance end 10e is wider than guide section 10d). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the formation of optical fiber through openings, which are wider at the entrance end of the opening, of Hengelmolen in the method of Dautartus. The motivation would have been to improve insertion efficiency (Hengelmolen, page 2, paragraph 22).

Regarding claims 13 and 14, Dautartus in view of Hengelmolen teaches the limitations of the base claim 8. Dautartus also teaches that holes are made in the ferrule by mechanical punching (page 3, paragraph 39).

Regarding claim 15, Dautartus in view of Hengelmolen teaches the limitations of the base claim 8. Dautartus does not teach alignment pin through openings extending

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through the body between the top and the bottom. Hengelmolen teaches alignment pin through openings (Figures 1 and 2, element 10a) extending through the body between the top and the bottom. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the formation of alignment pin through openings of Hengelmolen in the method of Dautartus. The motivation would have been to improve alignment with respect to another ferrule (Hengelmolen, page 2, paragraph 25).

Regarding claim 16, Dautartus teaches a method for making a ferrule (Figure 1A, element 120) for an optical fiber connector (page 3, paragraph 39) comprising the steps of: forming a plurality of ferrule layers from a ceramic material greensheet (page 3, paragraph 39), stacking the ferrule layers to a desired thickness having a top, bottom, front and rear sides and opposed sides (Figure 1A and page 3, paragraph 39), and securing the layers to hold the stack together (by laminating and firing, page 3, paragraph 39). Although Dautartus teaches the step of forming openings (page 3, paragraph 39), Dautartus does not explicitly teach that the openings are optical fiber through openings extending through the top and bottom in the desired pattern forming the ferrule. Hengelmolen teaches a ferrule (Figures 1 and 2, element 10) with a plurality of optical fiber through openings (Figures 1 and 2, element H) extending through the body between the top and the bottom for holding individual optical fibers (page 2, paragraphs 27-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the optical fiber through openings of Hengelmolen in the ferrule of Dautartus. The motivation would have been to improve the securing and alignment of the optical fibers held in the ferrule (Hengelmolen, page 2, paragraph 28).



Regarding claim 17, Dautartus in view of Hengelmolen teaches the limitations of the base claim 16. Dautartus also teaches the step of forming openings in each layer before stacking (page 3, paragraph 39).

Regarding claim 18, Dautartus in view of Hengelmolen teaches the limitations of the base claim 16. Dautartus also teaches the step of sintering (firing) the ceramic greensheets after forming the openings (page 3, paragraph 39).

Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dautartus in view of Hengelmolen as applied to claims 1-18 above, and further in view of US Patent to Sizer, II et al, number 5,345,529.

Regarding claim 19, Dautartus in view of Hengelmolen teaches the limitations of the base claim 16. Dautartus does not teach the step of forming fiber supports for a portion of the optical fibers not held in the ferrule. Sizer teaches a ferrule (Figure 2D, element 230) comprising fiber supports (Figure 2D, support plate 201) for a portion of the optical fibers (Figure 2D, elements 210 and 220) not held in the ferrule (Figure 2D and column 2, lines 31-66). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the formation of fiber supports of Sizer in the method of Dautartus in view of Hengelmolen. The motivation would have been to improve the precision of the mounting of the fibers (Sizer, abstract).

Regarding claim 20, Dautartus in view of Hengelmolen teaches the limitations of the base claim 1. Dautartus does not teach a molded support to hold a portion of optical fibers extending from the ferrule. Sizer teaches a ferrule (Figure 2D, element 230) comprising a support (Figure 2D, support plate 201) to hold a portion of optical

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fibers (Figure 2D, elements 210 and 220) extending from the ferrule (Figure 2D and column 2, lines 31-66). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the support of Sizer in the ferrule of Dautartus in view of Hengelmolen. The motivation would have been to improve the precision of the mounting of the fibers (Sizer, abstract).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Martin Blevins whose telephone number is 571-272-8581. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMB



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